

C1
level

depositing a conductive layer over a substrate;
forming a photoresist pattern on the conductive layer;
etching the conductive layer using the photoresist pattern as a mask to form a lower electrode;
removing the photoresist using an etching gas that is non-reactive with respect to the lower electrode, wherein the etching gas is one of H₂O, a mixture of H₂ and O₂ in which an amount of H₂ is smaller than an amount of O₂, a mixture H₂O, NH₃, and N₂, a mixture of N₂ and NH₃, a mixture of NH₃ and H₂O, and a mixture of N₂ and H₂O; and
forming a dielectric film and an upper electrode on a surface of the lower electrode.

C2

4. (Amended) A method for fabricating a capacitor of a semiconductor device comprising:

forming a conductive region on a semiconductor substrate;
forming an interleaving insulating film having a contact hole therein over the conductive region;
forming a contact plug within the contact hole;
forming insulating film patterns on the interleaving insulating film to expose the contact plug and the interleaving insulating film adjacent to the contact plug;

depositing a barrier film and a first conductive layer on the contact plug and the insulating film patterns;

forming a photoresist over the contact plug between the insulating film patterns;

C2
lower
sequentially removing the first conductive layer and the barrier film on the insulating film patterns using the photoresist as a mask, thereby forming a lower electrode and a barrier film in a U-shape in cross-section;

removing the photoresist using an etching gas that is non-reactive with respect to the lower electrode, wherein the etching gas is one of H_2O , a mixture of H_2 and O_2 in which an amount of H_2 is smaller than an amount of O_2 , a mixture H_2O , NH_3 , and N_2 , a mixture of N_2 and NH_3 , a mixture of NH_3 and H_2O , and a mixture of N_2 and H_2O ;

removing the insulating film patterns; and

sequentially forming a dielectric film and an upper electrode on the lower electrode and the barrier film.